

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 6, 7, 9-21, and 23-26, AMEND claims 1, 4, 8, and 22, and ADD new claims 27 and 28 in accordance with the following:

1. (Currently Amended) A method of optimizing a recording current of a hard disk drive, comprising:
measuring a rate of errors while changing a recording parameter of the hard disk drive
under a test condition corresponding to ~~an a desired operating temperature of a hard disk drive,~~
~~while changing a recording parameter but maintaining a test temperature;~~
selecting a recording parameter value corresponding to a smallest rate of errors under
the test condition; and
optimizing the recording ~~current for~~parameter of the hard disk drive under the desired
operating environmental condition temperature using the selected recording parameter
value measured under the test condition corresponding to the desired operating temperature.
2. (Original) The method of claim 1, wherein when the test condition corresponds to a low temperature, data is recorded on a target track a predetermined number of times, and the data is read from the target track a predetermined number of times.
3. (Original) The method of claim 1, wherein when the test condition corresponds to a room temperature, data is recorded on tracks adjacent to a target track a predetermined number of times, N , and the data is read from the target track a predetermined number of times.
4. (Currently Amended) ~~The method of claim 3~~ A method of optimizing a recording current, comprising:
measuring a rate of errors under a test condition corresponding to an operating
temperature of a hard disk drive, while changing a recording parameter;
selecting a recording parameter value corresponding to a smallest rate of errors; and
optimizing the recording current for the hard disk drive under operating environmental

conditions using the selected recording parameter value,

wherein when the test condition corresponds to a room temperature, data is recorded on tracks adjacent to a target track a predetermined number of times, N , and the data is read from the target track a predetermined number of times,

when the test condition corresponds to a high temperature, data is recorded on tracks adjacent to a target track a predetermined number of times, M ,

wherein $M > N$, and the data is read from the target track a predetermined number of times.

5. (Original) The method of claim 4, wherein when the test condition corresponds to the high temperature, the measuring of the rate of errors is performed in a data zone selected from each of an inner diameter (ID), a middle diameter (MD), and an outer diameter (OD) of a disk of the hard disk drive, and each recording parameter obtained in each of the respective selected data zones is applied throughout all of the data zones in the respective ID, MD, and OD.

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) ~~The method of claim 7~~ A method of optimizing a recording current, comprising:

measuring a rate of errors under a test condition corresponding to an operating temperature of a hard disk drive, while changing a recording parameter;

selecting a recording parameter value corresponding to a smallest rate of errors;

optimizing the recording current for the hard disk drive under operating environmental conditions using the selected recording parameter value; and

normalizing a graph illustrating the recording parameter versus rate of errors,

wherein during normalizing, when there are at least two recording parameter values corresponding to the smallest rate of errors, the method further comprises: computing a mean value of the corresponding parameter values.

9-21. (Cancelled)

22. (Currently Amended) ~~The method according to claim 17A~~ method, comprising:
for a range of operating temperatures for a hard disk drive, measuring a rate of errors for
a range of values of a recording parameter;

selecting and storing the recording parameter value corresponding to a minimum rate of
errors for a given operating temperature;

monitoring the operating temperature during recording to the hard disk drive; and
employing the stored recording parameter value corresponding to the monitored
operating temperature,

wherein when there are at least two recording parameter values that correspond to the minimum rate of errors for the given operating temperature, then the selecting of the recording parameter value comprises: normalizing the at least two recording parameter values.

23-26. (Cancelled)

27. (New) The method of claim 1, wherein the test condition comprises at least one of a recording number on a target track, recording numbers on tracks adjacent to the target track, and a reading number of the target track.

28. (New) The method of claim 27, wherein as desired operating temperature rises, the recording numbers on tracks adjacent to the target track correspondingly rise.